



Drinking Water Testing; Results, Interpretation and Use

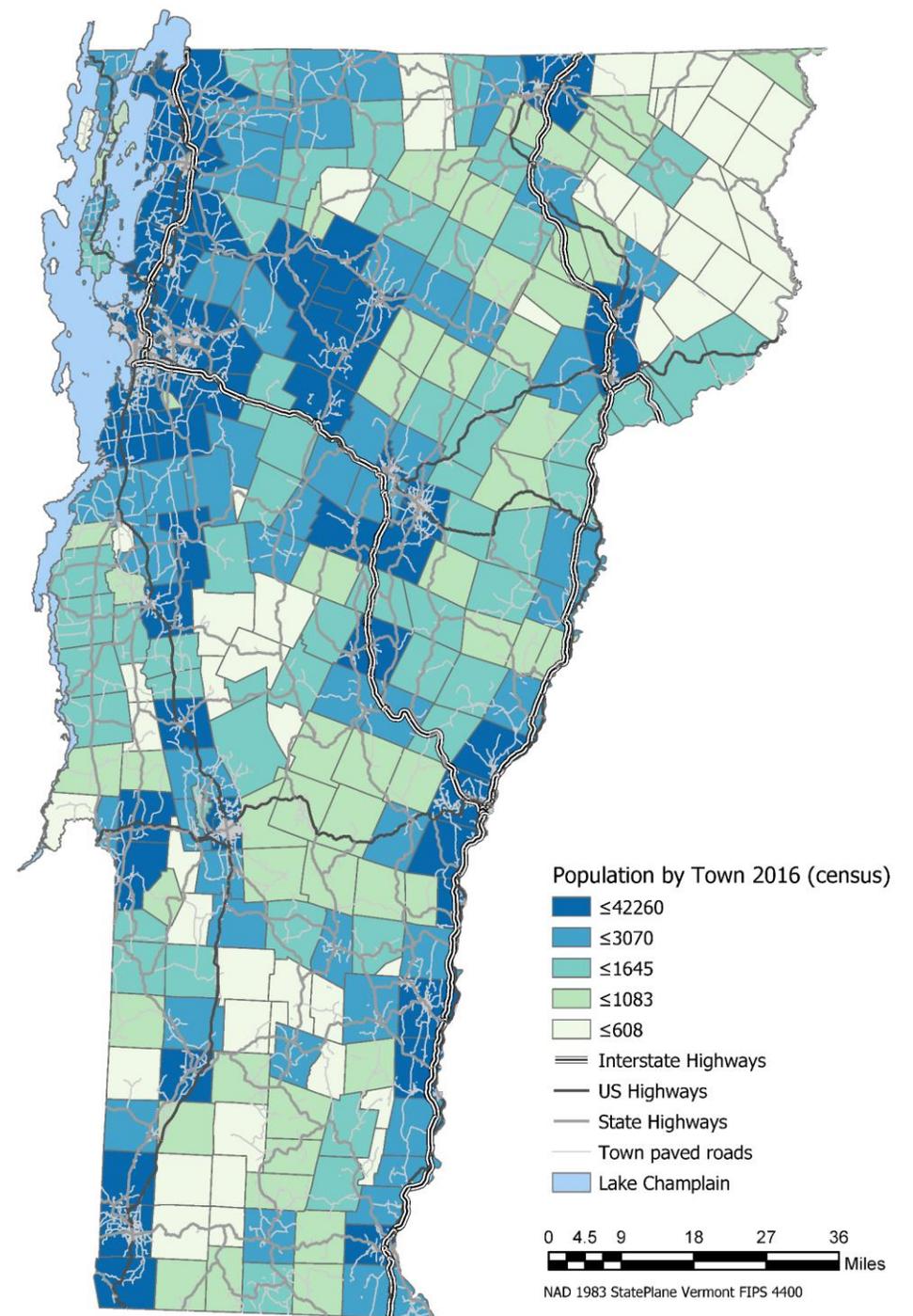
Sille Larsen

Senior Water Resources Engineer
Environmental Health, Vermont Department of Health

Background

Drinking water in Vermont

- Population of Vermont:
623,657
- Vermonters on public water:
~70%
- Vermonters on private water:
~30%
 - ▣ Private water sources tested:
~5-11%
 - ▣ >10% of results have at least
one contaminant above a level
of concern



Results Interpretation

How to Read Your Water Test Results

This unique number is used to identify your sample results.



359 SOUTH PARK DR
COLCHESTER, VT 05430
(802) 338-4724 or (800) 660-9999
www.healthvermont.gov

Results Report

State Health Dept # : 18-IC-03319
Report Status : Final
Date Report Released : 07/13/2018

Report To
ATTN OF
Address



WSID
Account Name
Date Received 07/09/2018
Time Received 10:15
Approved Date 07/13/2018



Sample Desc.	KIT C	Sample	WSID
Collection Date	07/09/2018	Collection	Account Name
Collection Time	06:30	Free	Date Received 07/09/2018
Sample		Total	Time Received 10:15
Sample Street		Chloride	Approved Date 07/13/2018
Town		Field	
Sample		Field	
Address		Temp	
City			
State			
Zip			
County			
Notes			
Test	Anions	Date/Time of Analysis	07/09/2018 10:43
Analyte	Fluoride	Test Method	EPA 300.0
Final Result	4.37	Units	mg/L
Units	mg/L	Limit	4.0 MCL
Limit	4.0		
Analyte	Chloride	Units	mg/L
Final Result	28	Limit	250 SMCL
Units	mg/L		
Limit	250		
Analyte	Nitrite as N	Units	mg/L
Final Result	<0.10	Limit	1.0 MCL
Units	mg/L		
Limit	1.0		
Analyte	Nitrate as N	Units	mg/L
Final Result	<0.50	Limit	10.0 MCL
Units	mg/L		
Limit	10.0		
** See below for Nitrate and/or Nitrite.			
Test	Hardness (EDTA)	Date/Time of Analysis	07/09/2018
Analyte	Hardness	Test Method	SM 2340 C
Final Result	< 5 m	Units	mg/L
Units	mg/L	Limit	*
Limit	*		
Test	Iron by Flame AA	Date/Time of Analysis	07/10/2018 11:50
Analyte	Iron	Test Method	SM 3111 (B)
Final Result	<0.10	Units	mg/L
Units	mg/L	Limit	0.3 SMCL
Limit	0.3		

The final result is how much of a chemical is in your drinking water.

Units are measured in milligrams per liter (mg/L).

The limit is the maximum amount of a chemical that is allowed in your drinking water based on federal or state standards. The unit of measure is the same as for the final result (mg/L). If the final result is above the limit, consider treating your water to reduce or remove the chemical.

The symbol "<" means "less than." Here, the nitrate level is less than 0.50.

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Date Received: 07/09/2018
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Sample Desc.	KIT C	Sample Desc.
Collection Date	07/09/2018	Collection Date
Collection Time	06:30	Collection Time
Sample Location		Sample Location
Street		Street
Town		Town
Sample ID		Sample ID
Test	Anions	Test
Analyte	Final Result	Units
Fluoride	4.37	mg/L
Chloride	28	mg/L
Nitrite as N	<0.10	mg/L
Nitrate as N	<0.50	mg/L
** See below for Nitrate and/or Nitrite.		Limit
		4.0 MCL
		250 SMCL
		1.0 MCL
		10.0 MCL

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Test	Hardness (EDTA)	Date/Time of Analysis	07/09/2018 10:43
		Test Method	SM 2340 C
Analyte	Hardness	Units	Limit
		mg/L	*
* < 5 mg/L			

The symbol "<" means "less than." Here, the nitrate level is less than 0.50.

Test	Iron by Flame AA	Date/Time of Analysis	07/10/2018 11:50
		Test Method	SM 3111 (B)
Analyte	Iron	Final Result	Units
		<0.10	mg/L
			Limit
			0.3 SMCL

Collection Time	06:30
Anions	
Fluoride	Final Result 4.37
Chloride	28
Nitrite as N	<0.10
Nitrate as N	<0.50

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Sample Desc.	KIT C	Sample
Collection Date	07/09/2018	Collection Date
Collection Time	09:30	Collection Time
Sample		Sample
Street		Street
Town		Town
Sample		Sample
Operator		Operator
Test	Anions	Test
		EPA 300.0
Analyte	Final Result	Units
Fluoride	4.37	mg/L
Chloride	28	mg/L
Nitrite as N	<0.10	mg/L
Nitrate as N	<0.50	mg/L
** See below for Nitrate and/or Nitrite.		
Test	Hardness (EDTA)	Date/Time of Analysis
		07/09/2018
		Test Method
		SM 2340 C
Analyte	Final Result	Units
Hardness	< 5 mg/L	mg/L
		Limit
		*
Test	Iron by Flame AA	Date/Time of Analysis
		07/10/2018 11:50
		Test Method
		SM 3111 (B)
Analyte	Final Result	Units
Iron	<0.10	mg/L
		Limit
		0.3 SMCL

Units are measured in milligrams per liter (mg/L).

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The symbol "<" means "less than." Here, the nitrate level is less than 0.50.

Final Result	Units
4.37	mg/L
28	mg/L
<0.10	mg/L
<0.50	mg/L

Results Interpretation

How to Read Your Water Test Results



359 SOUTH PARK DR
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WSID
Account Name
Date Received 07/09/2018
Time Received 10:15
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Sample Desc. KIT C
Collection Date 07/09/2018
Collection Time 06:30
Sample Location
Street
Town
Sample ID

The final result is how much of a chemical is in your drinking water.

Units are measured in milligrams per liter (mg/L).

The limit is the maximum amount of a chemical that is allowed in your drinking water based on federal or state standards. The unit of measure is the same as for the final result (mg/L). If the final result is above the limit, consider treating your water to reduce or remove the chemical.

Test	Anions	Final Result	Units	Limit	
Analyte	Fluoride	4.37	mg/L	4.0	MCL
	Chloride	28	mg/L	250	SMCL
	Nitrite as N	<0.10	mg/L	1.0	MCL
	Nitrate as N	<0.50	mg/L	10.0	MCL

** See below for Nitrate and/or Nitrite.

Test Hardness (EDTA) Date/Time of Analysis 07/09/2018 10:45
Test Method SM 2340 C

Analyte	Hardness	Final Result	Units	Limit
		< 5 mg/L	mg/L	*

The symbol "<" means "less than." Here, the nitrate level is less than 0.50.

Test Iron by Flame AA Date/Time of Analysis 07/10/2018 11:50
Test Method SM 3111 (B)

Analyte	Iron	Final Result	Units	Limit
		<0.10	mg/L	0.3 SMCL

The limit is the maximum amount of a chemical that is allowed in your drinking water based on federal or state standards. The unit of measure is the same as for the final result (mg/L). If the final result is above the limit, consider treating your water to reduce or remove the chemical.

Test	EPA 300.0	Limit	
		4.0	MCL
		250	SMCL
		1.0	MCL
		10.0	MCL

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Date Received 07/09/2018
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Sample Desc.	KIT C	Sample
Collection Date	07/09/2018	Collection
Collection Time	06:30	Free
Sample		Total
Street		Chloride
Town		Field
Sample		Field
Operator		Temp

Test	Anions	Date/Time of Analysis	Test Method
		07/09/2018 10:43	SM 2340 C
			EPA 300.0
Analyte	Final Result	Units	Limit
Fluoride	4.37	mg/L	4.0 MCL
Chloride	28	mg/L	250 SMCL
Nitrite as N	<0.10	mg/L	1.0 MCL
Nitrate as N	<0.50	mg/L	10.0 MCL
** See below for Nitrate and/or Nitrite.			

Test	Hardness (EDTA)	Date/Time of Analysis	Test Method
		07/09/2018	SM 2340 C
Analyte	Final Result	Units	Limit
Hardness		mg/L	*
* < 5 mg/L			

Test	Iron by Flame AA	Date/Time of Analysis	Test Method
		07/10/2018 11:50	SM 3111 (B)
Analyte	Final Result	Units	Limit
Iron	<0.10	mg/L	0.3 SMCL

Analyte	Final Result	Units
Fluoride	4.37	mg/L
Chloride	28	mg/L
Nitrite as N	<0.10	mg/L
Nitrate as N	<0.50	mg/L
** See below for Nitrate and/or Nitrite.		

Test	Hardness (EDTA)
Analyte	Final Result
Hardness	
* < 5 mg/L	

The symbol "<" means "less than." Here, the nitrate level is less than 0.50.

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The symbol "<" means "less than." Here, the nitrate level is less than 0.50.

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Inorganic Limits			StarLIMS Requirements		Comment to appear
mg/L					
Uranium	0.020	VMCL	Given the final reported result of Uranium is > 0.020 mg/L a comment will appear on the report.	No WSID	Comment #1 The result for Uranium is greater than the Vermont Maximum Contaminant Level of 0.020 mg/L. Treatment is recommended.
					Comment #2 For guidance and treatment recommendations, please visit www.healthvermont.gov/water-contaminants . If you have any further questions, please call 802-863-7220 or 800-439-8550 (toll-free in Vermont).
				WSID present	only comment The result for Uranium is greater than the Vermont Maximum Contaminant Level of 0.020 mg/L.

maximum amount of a allowed in your drinking federal or state standards. ure is the same as for the . If the final result is above er treating your water to emove the chemical.

	0.300	VHA	Given the final reported result of Manganese is > 0.300 mg/L a comment will appear on the report.	No WSID	Comment #1 The result for Manganese is greater than the Vermont Health Advisory of 0.300 mg/L. Treatment is recommended.
					Comment #2 For guidance and treatment recommendations, please visit www.healthvermont.gov/water-contaminants . If you have any further questions, please call 802-863-7220 or 800-439-8550 (toll-free in Vermont).
				WSID present	only comment The result for Manganese is greater than the Vermont Health Advisory of 0.300 mg/L.

Time of Analysis 07/10/2018 11:50
Test Method SM 3111 (B)

Limit
0.3 SMCL

Resources

HOME / HEALTH & THE ENVIRONMENT / DRINKING WATER /

ARSENIC IN DRINKING WATER

Arsenic comes in different forms. It is a natural element found in rocks and soil. It can also come from human activities and is used in some consumer products. Every day you take in very small amounts of arsenic from air, water and food. Food, particularly seafood and fish, is usually the main source. But this form of arsenic is different than the arsenic in rocks and soil, and is not as harmful to your health.

- > [Health Concerns: Is arsenic harmful to my health?](#)
- > [Source: How does arsenic get into my water?](#)
- > [Testing: How do I know if arsenic is in my water?](#)
- > [Treatment Options: Can I remove or lower the levels of arsenic in my water?](#)
- > [Financial Assistance: Is there funding available to help me pay for my water system or treatment?](#)

RESOURCES

[Find a water treatment specialist](#) ⓘ
[Find a licensed well driller](#) ⓘ
[Find an NSF-certified home water treatment system](#) ⓘ

 [View Map: Arsenic in Vermont Private Wells](#) ⓘ

- [Arsenic and You: water testing information from Dartmouth College](#) ⓘ
- [Arsenic and You: water treatment information from Dartmouth College](#) ⓘ
- [Arsenic in air, consumer products, and pressure treated wood](#)

CONTACT:
Environmental Health Division
108 Cherry Street
P.O. Box 70 – Drawer 30

Use of Data

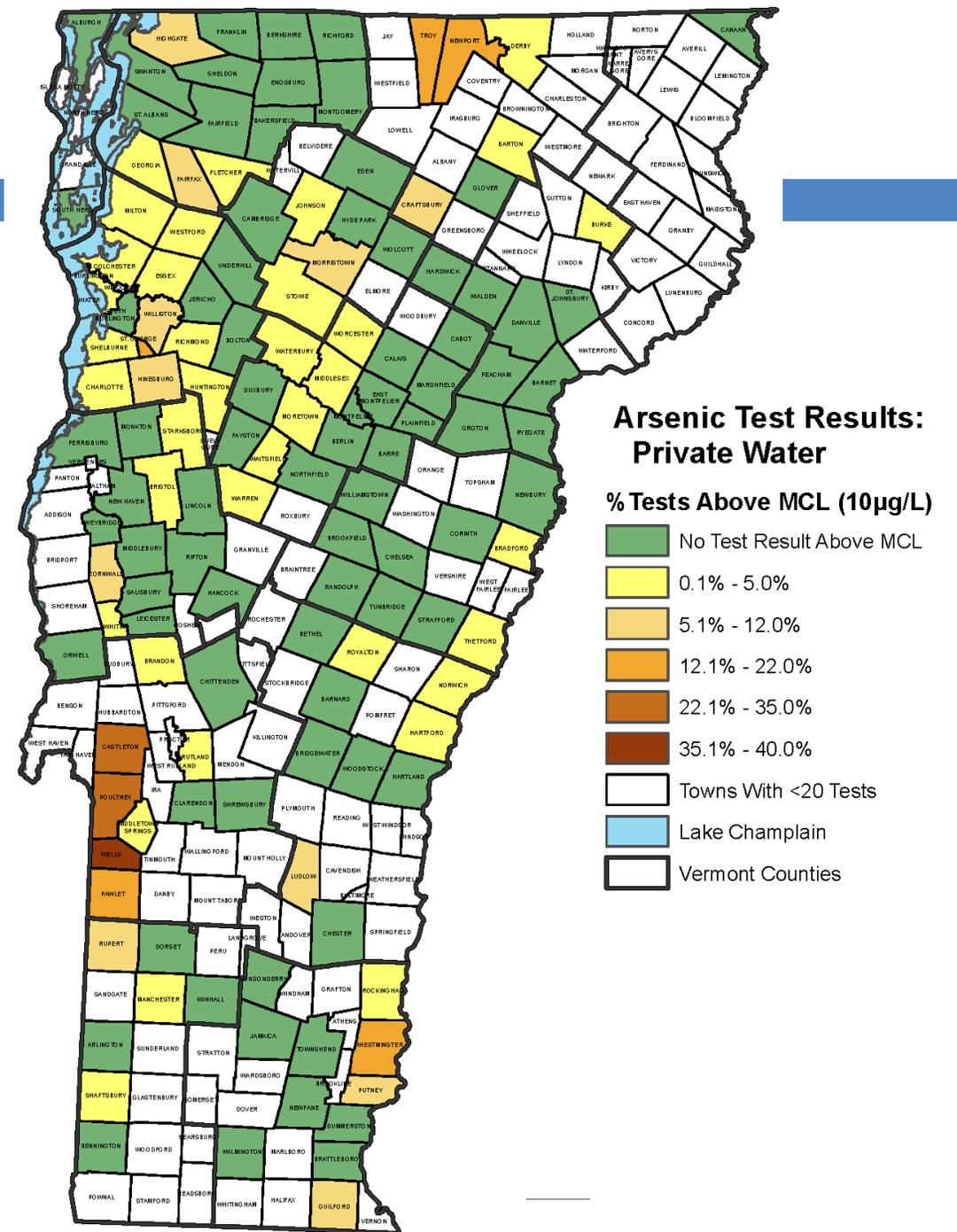
Arsenic

- Naturally occurring (VT: Non Detects – 327 ug/L)
- MCL: 10 ug/L
- Potent carcinogen (1 in 300 cancer risk)
- Used the map for targeted outreach to towns

Map and more information:

<http://www.healthvermont.gov/water/arsenic>

Data source: Vermont Department of Health Laboratory 2003-2016,
Vermont Geological Survey 2002-2014



Use of Data

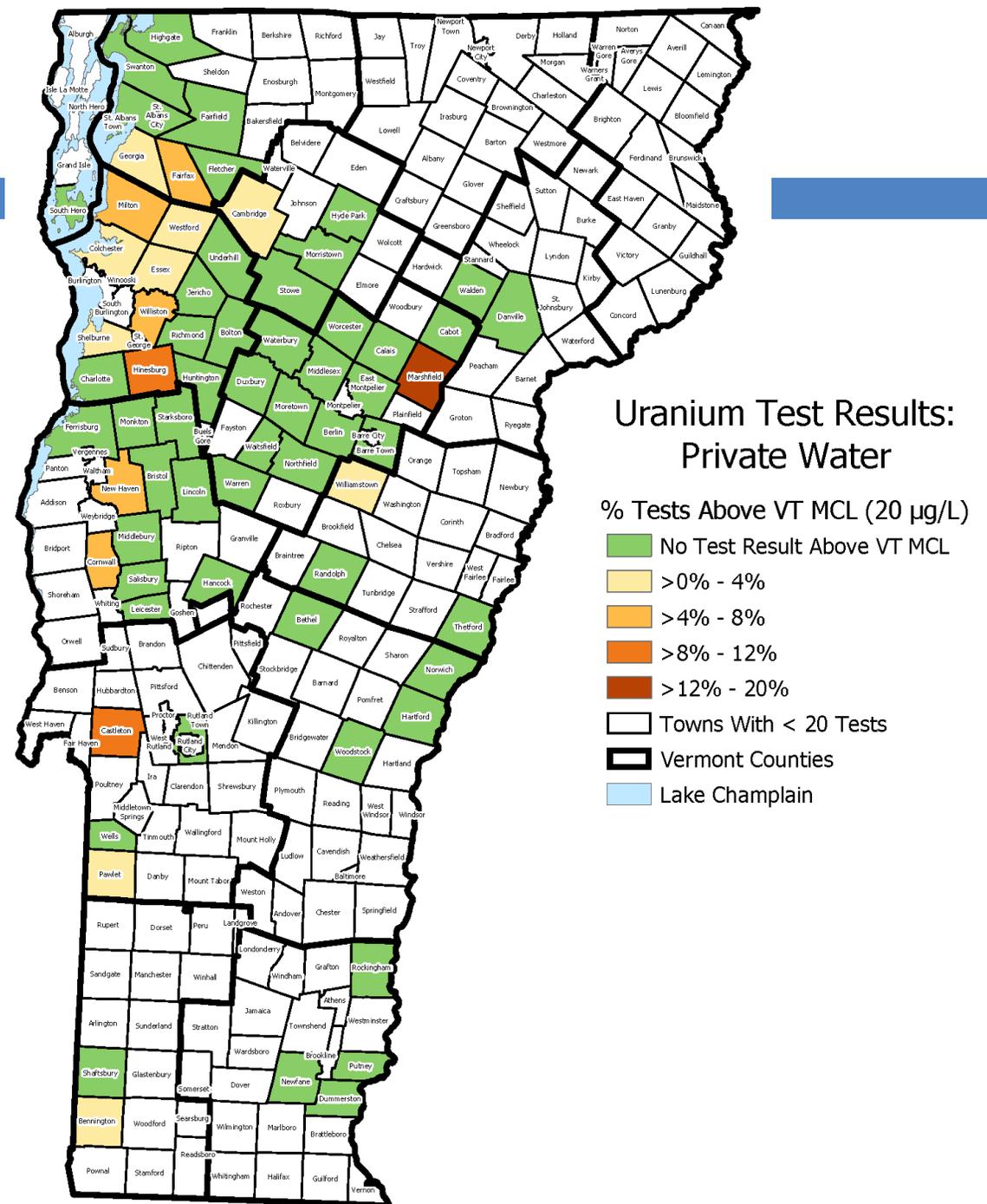
Uranium

- Naturally occurring (VT: Non Detects – 797 ug/L)
- VT MCL: 20 ug/L
 - ▣ Damage to kidney cells
- One of several radionuclides in bedrock
 - ▣ Others include; radium, radon

Map and more information:

<http://www.healthvermont.gov/water/radioactive-elements>

Data source: Vermont Department of Health Laboratory 2012-2018



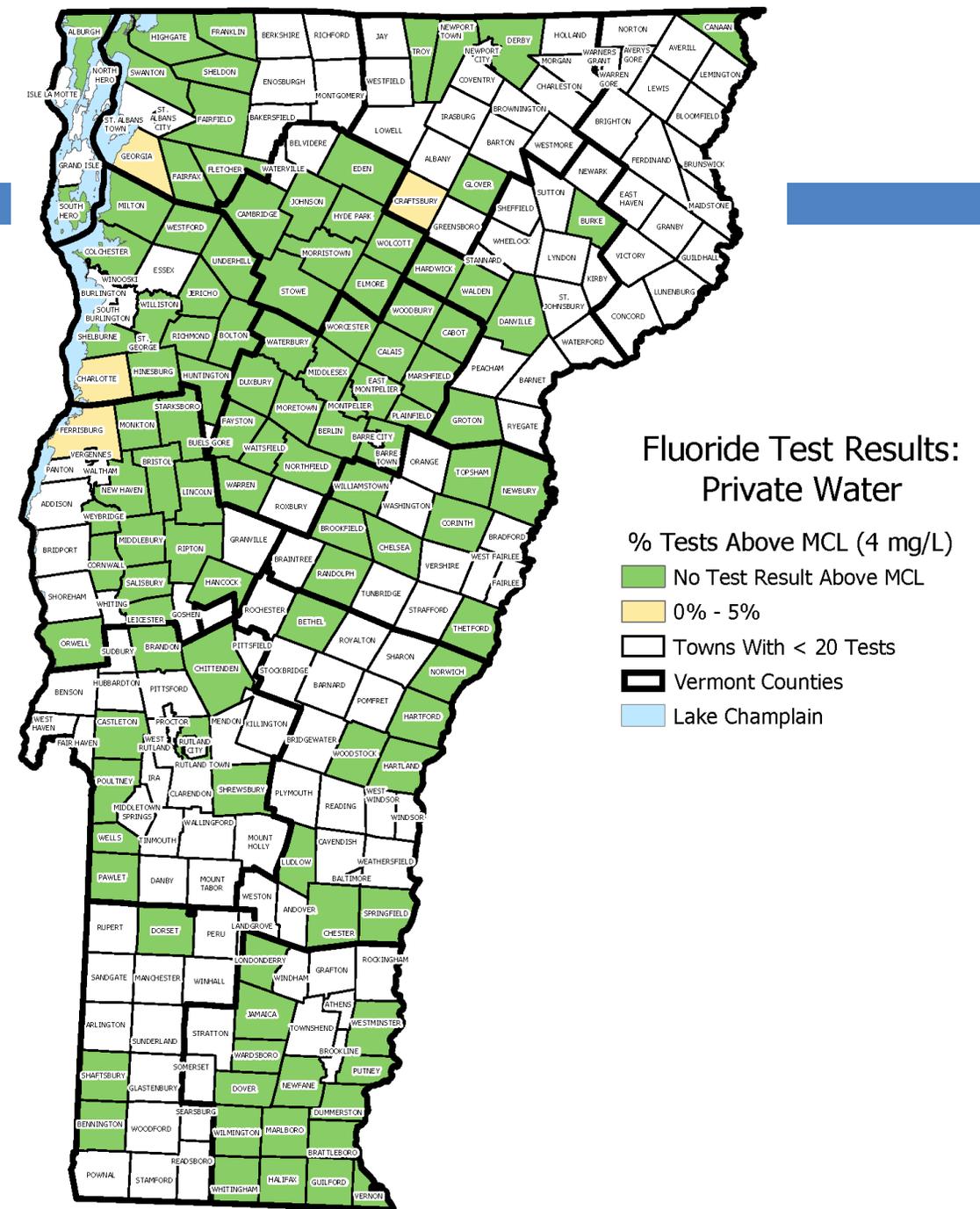
Use of Data

Fluoride

- Naturally occurring (VT: Non Detects – 9.74 mg/L)
- High levels are due to presence of fluoride-rich rock formation
- Primary MCL: 4 mg/L
 - ▣ Bone disease
- Secondary MCL: 2 mg/L
 - ▣ Browning, pitting of teeth
- Public water: 0.7 mg/L
 - ▣ Mitigating effect against dental caries

Map and more information:

<http://www.healthvermont.gov/water/fluoride>



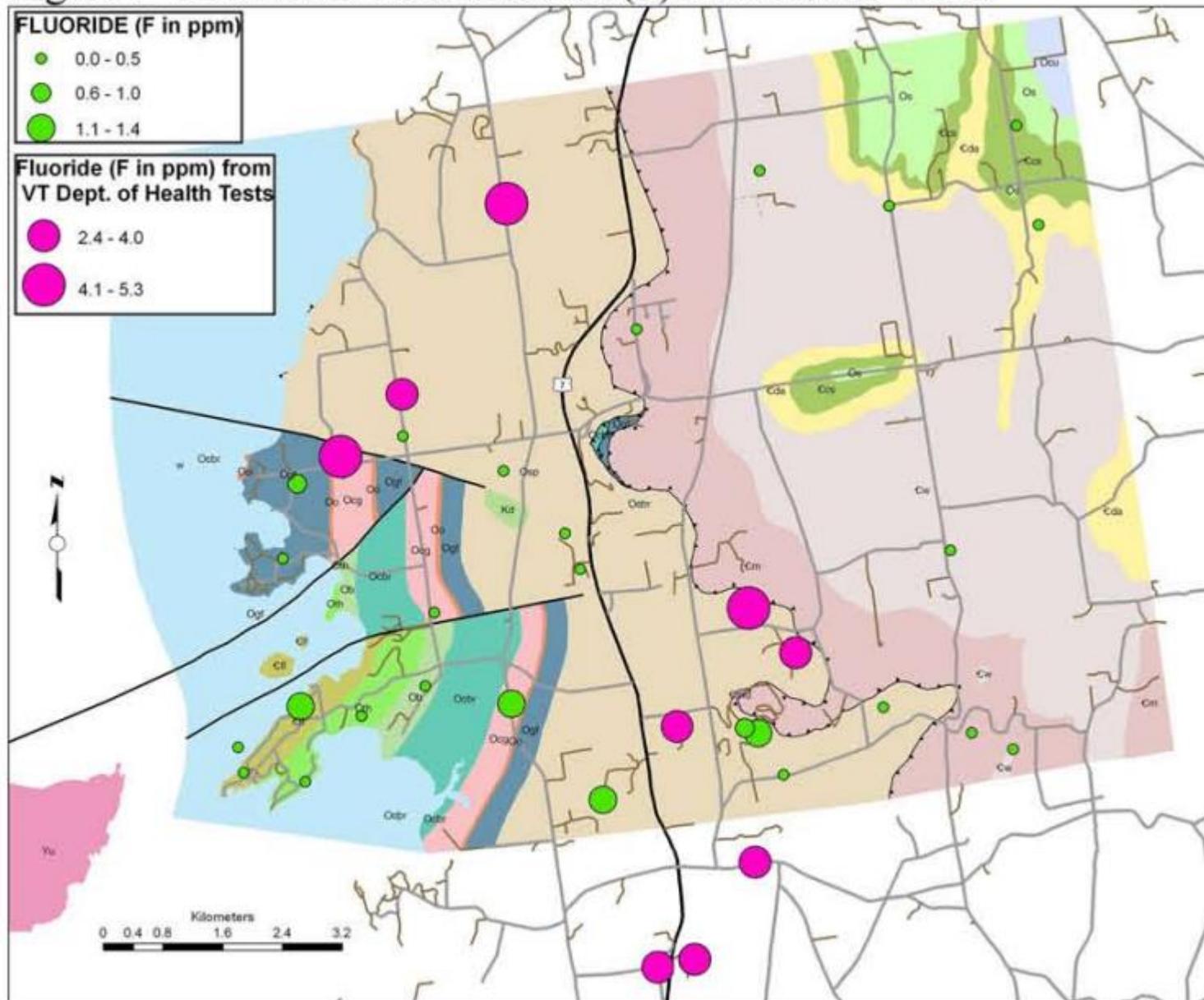
Water testing

Groundwater testing in the Town of Charlotte

- By Vermont Geological Survey and Middlebury College
- Summer 2009
- 27 wells
- Metals and non-metals

<https://dec.vermont.gov/geological-survey>

Figure 7- Scaled Levels of Fluoride (F) in Charlotte Wells



EPA Primary MCL (health) for fluoride is 4 ppm. EPA Secondary MCL (odor, taste, color) for fluoride is 2 ppm.

More info

www.healthvermont.gov/water

www.healthvermont.gov/water-contaminants

Resources

HEALTH & THE ENVIRONMENT

- ASBESTOS & LEAD IN BUILDINGS
- CHILDREN'S ENVIRONMENTAL HEALTH
- CLIMATE & HEALTH
- DRINKING WATER
- ENVIRONMENTAL CHEMICALS & POLLUTANTS
- ENVIRONMENTAL PUBLIC HEALTH TRACKING
- FOOD & LODGING PROGRAM
- HEALTHY HOMES
- HEALTHY SCHOOLS
- RADIOLOGICAL HEALTH
- RECREATIONAL WATER
- TOWN HEALTH OFFICERS

QUICK LINKS | ALERTS | GET HELP NOW | HOW HEALTHY ARE WE? | SEARCH

HOME / HEALTH & THE ENVIRONMENT /

DRINKING WATER



About Drinking Water
Drinking water is a shallow well. It contains calcium and magnesium, and the laundry and the house (EPA) of their.

It is important to know what to test for and when, how to treat your water.

Department can provide you with guidance and information on what to test for and when, how to treat your water.

For questions about the health effects of contaminants, call 802-863-7220 or 800-439-8550 (toll-free in Vermont).

To order drinking water test kits, call the Vermont Department of Health at 802-338-4736 or 800-660-9997 (toll-free in Vermont).

Recommended contaminants to test for and how to test for them. Drinking Water Guidance (for contaminant levels and how to test for them). Results for the lead in school drinking water.

PUBLIC HEALTH LABORATORY

- DRINKING WATER TESTING
- ENVIRONMENTAL TESTING
- CLINICAL TESTING
- RABIES TESTING
- FOOD SAFETY TESTING
- LABORATORY EMERGENCY PREPAREDNESS
- LABORATORY CERTIFICATION OR APPROVAL
- FORMS & ORDERING INFORMATION
- CONTACT US/DIRECTIONS

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HOME / PUBLIC HEALTH LABORATORY / DRINKING WATER TESTING /

A-Z DRINKING WATER CONTAMINANTS



The links below will help you learn more about drinking waters, including your own.

- what the contaminants are
- how the contaminants get into the water
- how to test for the contaminants
- how to treat for the contaminants

The Health Department uses different types of drinking water. If your water is contaminated above the guidance level may pose some health risks. Learn more about Vermont's drinking water guidance levels.

CONTACT:

Public Health Laboratory
359 South Park Drive
Colchester, VT 05446

Antimony

Arsenic

Bacteria (Total Coliform, *E. coli*)

QUESTIONS?

Call: 802 863 7233

or visit: healthvermont.gov/water

Thank you for listening!